

Criterion D – Scientific Inquiry



Table below shows the descriptors and indicators for Criterion D – Scientific Inquiry

Level	Descriptor	Indicator
0	The student does not reach a standard described by any of the descriptors below.	The student does not reach a standard described by any of the indicators below.
1 - 2	<p>The student attempts to state a focused problem or research question.</p> <p>The method suggested is incomplete.</p> <p>The student attempts to evaluate the method and respond to the focused problem or research question.</p>	Attempts to state an aim but the aim is incorrect because it is not related to the task.
		Has written two of the three science (independent, dependent or controlled) variables correctly .
		Method has been written but is largely unreadable and not doable by someone else.
		Method does not produce any useful data.
		Some materials and apparatus have been identified.
		Attempts to write an evaluation on the method so improvements can be made. <i>e.g. I can improve on the method next time by..</i>
3 - 4	<p>The student states a focused problem or research question and makes a hypothesis but does not explain it using scientific reasoning.</p> <p>The student selects appropriate materials and equipment and writes a mostly complete method, mentioning some of the variables involved and how to manipulate them.</p> <p>The student partially evaluates the method.</p> <p>The student comments on the validity of the hypothesis based on the outcome of the investigation.</p> <p>The student suggests some improvements to the method.</p>	Has written an aim related to the task and written a hypothesis simply/ a basic hypothesis. <i>Hypothesis – when x increases, y is expected to...</i>
		Has correctly written at least two of science variables (dependent, independent or control) and adequately explain how the variables are changed. <i>e.g. This is how the ... variable is changed</i>
		Some of the materials/apparatus are correctly listed or appropriate to the task.
		Method is readable and doable/repeatable by someone else.
		Method collects some useful data and allows a graph to be drawn.
		One of the evaluations on the experiment is correctly written so weaknesses are identified and

		<p>improvements can be made.</p> <p>e.g.</p> <p>1) The(apparatus) could be faulty and I should ... (suggest how to improve)</p> <p>2) In my earlier experiment, I had trouble and I corrected that by ...</p> <p>3) To improve, I will ...</p>
5 - 6	<p>The student states a clear focused problem or research question, formulates a testable hypothesis and explains the hypothesis using scientific reasoning.</p> <p>The student selects appropriate materials and equipment and writes a clear, logical method, mentioning all of the relevant variables involved and how to control and manipulate them, and describing how the data will be collected and processed.</p> <p>The student comments on the validity of the hypothesis based on the outcome of the investigation.</p> <p>The student suggests realistic improvements to the method.</p>	<p>Has written an aim relating to the problem and written a hypothesis backed by scientific concepts or reasoning.</p> <p>E.g. when x increases, y is expected to...</p> <p>This is because the worm is/would be...</p>
		<p>Has correctly written all three science variables (dependent, independent and control) and could accurately and clearly explain how the variables are changed.</p>
		<p>Most of the materials/apparatus are correctly listed or appropriate to the problem.</p>
		<p>Method is readable and doable/repeatable by someone else.</p>
		<p>Method collects at least four useful data and allows for an effective graph to be drawn.</p>
		<p>Method allows for conclusion to be written.</p>
		<p>Hypothesis has been confirmed/debunked/proven false using the described trend, pattern or relationship</p> <p>e.g. This trend/pattern/relationship showed that my hypothesis is true/false</p>
		<p>At least two of the evaluations on the experiment are correctly written so weaknesses are identified and improvements can be made.</p> <p>e.g.</p> <p>1) The(apparatus) could be faulty and I should ... (suggest how to improve)</p> <p>2) In my earlier experiment, I had trouble and I corrected that by ...</p> <p>3) To improve, I will ...</p>